

We claim:

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1. A steel processing material comprising:

- (a) dried post combustion material (PCM), and
- (b) slag foaming material.

2. The steel processing material of claim 1 wherein the slag foaming material comprises about 90% coal and about 10% dolomitic stone.

3. The steel processing material of claim 1 comprising about 5% to about 30% of the dried PCM.

4. The steel processing material of claim 1 wherein the dried PCM comprises less than about 2% water.

5. The steel processing material of claim 1 wherein the dried PCM is of an injectable particle size, has an average particle size sufficiently small to allow injection of the PCM into the heat of steel.

6. The steel processing material of claim 1 wherein the dried PCM has maximum particle not greater than about 5/16 of an inch .

7. The steel processing material of claim 1 wherein the dried PCM comprises about 30% to about 55% Fe.

8. A method of preparing a steel processing material comprising:

- (a) process; and
- (b) drying the PCM.

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9. The method of preparing a steel processing material of claim 8 wherein drying is conducted in a screw auger dryer.

10. The method of preparing a steel processing material of claim 9 wherein the screw auger dryer comprises an induction heater.

11. The method of preparing a steel processing material of claim 9 further comprising sorting the PCM to obtain a fraction having an average particle size processable by the screw auger prior to drying.

12. The method of preparing a steel processing material of claim 11 wherein PCM is sorted to obtain a fraction having a particle size of about 3/4 of an inch.

13. The method of preparing a steel processing material of claim 8 wherein the drying is conducted in a rotary dryer.

14. The method of preparing a steel processing material of claim 8 wherein drying the PCM comprises drying the PCM to not greater than about 2% water content.

15. The method of preparing a steel processing material of claim 8 wherein drying the PCM comprises air drying the PCM to about 6% to about 8% water content.

16. The method of preparing a steel processing material of claim 8 further comprising sorting the PCM to obtain a fraction having an average particle size processable by an injection gun.

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17. The method of preparing a steel processing material of claim 16 wherein the PCM is sorted to obtain a fraction having a maximum particle size of about 5/16 of an inch.

18. The method of preparing a steel processing material of claim 8 further comprising conveying the dried PCM to a first container.

19. The method of preparing a steel processing material of claim 8 further comprising mixing the dried PCM with a slag foaming material.

20. The method of preparing a steel processing material of claim 19 wherein mixing is conducted by adding the dried PCM and concurrently slag foaming material into a container.

21. A method of preparing a steel processing material comprising:

(a) recovering dry post combustion material (PCM) from a steel making process; and

(b) mixing the PCM with a slag foaming material.

22. A method of manufacturing steel comprising:

(a) melting a first heat of steel comprising a liquid steel portion and a foamy slag wherein the melting generates a post combustion material (PCM);

(b) drying the PCM; and

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(c) adding the dried PCM into a second heat of steel.

23. The method of manufacturing steel of claim 22 wherein the PCM is recovered from the first heat.

24. The method of manufacturing steel of claim 22 further comprising mixing the dried PCM with a slag foaming material before the dried PCM is added to the second heat of steel.

25. The method of manufacturing steel of claim 23 wherein the adding of the dried PCM into a second heat of steel comprises injecting the dried PCM with an injection gun.

26. A steel processing material comprising:

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- (a) a dry recycled material; and
 - (b) a slag foaming material.

27. The steel processing material of claim 26 wherein the material is post combustion material, bag house dust, scale, or iron fines.

28. The method of manufacturing steel of claim 23 wherein the steps of melting, drying and adding are repeated until the concentration of heavy metals in the PCM reaches a set point.

29. The method of manufacturing steel of claim 28 further comprising sending the PCM to a reclamation process once the concentration of heavy metals in the PCM reaches the set point.

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